AFS Perl API

Current state and future development

Norbert E. Grüner

Max-Planck-Institute for Astrophysics

September 14, 2010

Brief History of AFS Perl API

- 1994 the original AFS module was written by Roland Schemers from the Stanford University
- 1999 Norbert Grüner became maintainer of the AFS module
- 2002 first upload on CPAN
- 2003 SLAC payed a summer student to work on the AFS::VOS and AFS::BOS modules
- Spring 2010 current version 2.6.2 released

The AFS Perl Implementation

- It is implemented mostly in XS (eXternal Subroutine)
- XS is used to create an extension interface between the AFS C libraries and Perl

Requirements / Restrictions

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- Perl version 5.5 or higher
- AFS header files and AFS system libraries from OpenAFS (any) or IBM/Transarc AFS (version 3.6)
- C compiler (e.g gcc)

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Restrictions

- no support for IBM/Transarc AFS system libraries version 3.4 or 3.5

Features (1)

The AFS Perl module contains 14 Perl classes

- AFS::ACL: Managing ACLs
- AFS::Cell: Manipulating Cell Configuration
- AFS::CM: Access to Cache Manager routines
- AFS::FS: Access to File Server routines
- AFS::PTS: Access to Protection Server routines
- AFS::Utils: Access to share utility functions
- AFS: Error handling, debugging, etc.

Features (2)

- AFS::VLDB: Access to VLDB related functions
- AFS::VOS: Access to Volume Location Server
- AFS::BOS: Access to Basic Overseer Server
- AFS::KAS: Access to Authentication Server routines
- AFS::KTC_TOKENS: Manage Kernel Token Cache
- AFS::KTC_PRINCIPAL: Deal with principals
- AFS::KTC_EKEY: Deal with encryption keys

Features (3)

- all classes are well documented
- contains about 200 example scripts

Advantages

- By using the C interface, faster than any command wrapper
- Direct access to lots of AFS data structures

VOS Example

Output OpenAFS VOS listpart command

```
>/usr/afsws/etc/vos listpart lnxsrv
The partitions on the server are:
    /vicepa
Total: 1
```

Output AFSPerl example script

```
>~/afsperl/examples/v2/vos/listpart lnxsrv
The partitions on the server are:
        /vicepa
Total: 1
```

VOS Example Script

```
#!/usr/local/bin/perl -w
use strict;
use AFS::VOS;
die "Usage: $0 server \n" if $#ARGV < 0;
my $server = shift;

my $vos = AFS::VOS->new;
my @partlist = $vos->listpart($server);
print "The partitions on the server are:\n";
foreach (@partlist) {
    print "\t$_\n";
}
print "Total: ", $#partlist + 1, "\n";
```

FS Example

Output OpenAFS FS whichcell command

```
>/usr/afsws/bin/fs whichcell .
File . lives in cell 'mpa-garching.mpg.de'
```

Output AFSPerl example script

```
>~/afsperl/examples/v2/cell/whichcell .
File . lives in cell 'mpa-garching.mpg.de'
```

FS Example Script

```
#!/usr/local/bin/perl -w
use strict;
use AFS::Cell qw (whichcell);

die "Usage: $0 file \n" if $#ARGV != 0;
my $file = shift;

$cell = whichcell($file);
print "File $file lives in cell \'$cell\'\n";
```

64 bit Platforms (1)

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If you use an "unthreaded" Perl version, it is working out of the box.

But unfortunately most Linux distributions come with a "threaded" Perl version.

64 bit Platforms (2)

For a "threaded" Perl it has to be linked against the threaded AFS libraries

- "libafsrpc" and
- "libafsauthent".

But these two libraries have to be PIC coded.

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For the current OpenAFS version 1.4.12.1 there are no PIC versions included.

Most probably they will be included in the next OpenAFS version 1.4.13

I have a patch available for the OpenAFS version 1.4.12 to build these two libraries.

Future Plans

Short Term

- Release version 2.6.3 which will support OpenAFS 1.4.12

Mid Term

- With the next major release 2.8.0 the modules for KAS server will not be supported any more.
- For Kerberos 5 use the CPAN Perl modules
  - Authen::Krb5 and
  - Authen::Krb5::Admin

Further Information

- CPAN:

  `http://search.cpan.org/~nog/AFS-2.6.2/`

- Wiki:

  `http://www.mpa-garching.mpg.de/kwiki/nog/afsperl/`

- Online Module Dokumentation:

  `http://www.mpa-garching.mpg.de/~nog/doc/AFS.html`

- Email:

  `nog@mpa-garching.mpg.de`

The END

Thank You for your Attention ...

Any Questions?